REMARKS

In the Final Action dated July 16, 2001, Claims 1, 3-6, 14-17 and 38-39 are pending. Claims 4 and 15 are withdrawn from further consideration as directed to non-elected restriction group. Claims 1, 3, 5-6, 14, 16-17 and 38-39 are under examination.

This Response addresses each of the Examiner's rejections and objections. Applicants therefore respectfully submit that the present application is in condition for allowance. Favorable consideration of all pending claims is therefore respectfully requested.

In the Final Action, Claims 1, 3-6, 14-17 and 38-39 have been subjected to further restriction by the Examiner under 35 U.S.C. §121 as follows:

I. Claims 1, 3, 5, 6, 14, 16, 17, 38 and 39, drawn to an isolated nucleic acid molecule comprising SEQ ID NO: 1, 4, 5, 7, 9, 11, or 13, vectors, host cells and pharmaceutical compositions, classified in class 435, subclass 69.1.

II. Claims 4 and 15, drawn to an antisense sequence and a pharmaceutical composition, classified in class 536, subclass 23.5.

In support of the present restriction requirement, the Examiner has alleged that the subject matter defined by the claims of the present invention represents two separate and distinct groups. The Examiner alleges that the products of Group I and II possess characteristic differences in structure and function, and that each has an independent utility that is distinct for each Group which cannot be exchanged.

In order to be fully responsive to the Examiner's requirements for restriction, Applicants confirm the oral election made by Applicants, through the undersigned, on July 9, 2001, with traverse, of the subject matter of Group I, directed to an isolated nucleic acid molecule comprising SEQ ID NO: 1, 4, 5, 7, 9, 11, or 13, vectors, host cells and pharmaceutical

compositions. Applicants reserve the right to file a divisional application directed to the subject matter of Claims 4 and 15.

However, pursuant to 37 C.F.R. §§1.111 and 1.143, Applicants hereby traverse the Examiner's requirement for restriction and request reconsideration thereof in view of the following remarks.

Applicants respectfully submit that the claims which the Examiner has grouped separately are not "independent and distinct" so as to justify the restriction requirement. In this regard, Applicants submit that an antisense sequence (Group II) can be isolated once the sense sequence (Group I) is disclosed. In addition, as disclosed in the specification, the antisense molecules can be used to down regulate the OGFr gene expression and translation from the sense molecule thereby inhibiting the production of the OGFr protein and enhancing cell growth. See the specification, e.g., Example 6, on pages 47-48. Thus, Groups I-II are clearly related aspects of the present invention, not "independent and distinct."

In addition, the Examiner cannot justify the restriction requirement in this case by reference to the different classes and subclasses of the Patent and Trademark Office classification system in which the two groups of claims would allegedly be classed. Notably, a sequence search directed to a sense sequence would and should capture antisense sequences of sufficient homology. Therefore, inclusion of antisense sequences in the examination does not create additional burden of search upon the Examiner.

Moreover, the courts have recognized that it is in the public interest to permit applicants to claim several aspects of their invention together in one application, as Applicants have done herein. The CCPA has observed:

> We believe the constitutional purpose of the patent system is promoted by encouraging applicants to claim, and therefore to describe in the manner required by 35 U.S.C. §112 all aspects as to what they regard as their invention, regardless of the number of statutory classes involved.

In re Kuehl, 456 F.2d 658, 666, 117 U.S.P.Q. 250, 256 (CCPA 1973). This interest is consistent with the practical reality that a sufficiently detailed disclosure supporting claims to one aspect of an invention customarily is sufficient to support claims in the same application to other aspects of the invention.

It is vital to all applicants that restriction requirements issue only with the proper statutory authorization, because patents issuing on divisional applications which are filed to prosecute claims, e.g., those directed to antisense sequences, that the Examiner held to be independent and distinct can be vulnerable to legal challenges alleging double patenting. The third sentence of 35 U.S.C. §121, which states that a patent issuing on a parent application "shall not be used as a reference" against a divisional application or a patent issued thereon, does not provide comfort to Applicants against such allegations. The Court of Appeals for the Federal Circuit has declined to hold that §121 protects a patentee from an allegation of same-invention double patenting, Studiengesellschaft Kohle mbH v. Northern Petrochemical Co., 784 F.2d 351, 355, 288 U.S.P.Q. 837, 840 (Fed. Cir. 1986); and in Gerber Garment Technology Inc. v. Lectra Systems Inc., 916 F.2d 683, 16 U.S.P.Q. 2d 1436 (Fed. Cir. 1990) that court held that §121 does not insulate a patentee from an allegation of "obviousness-type" double patenting, and in fact affirmed the invalidation on double patenting grounds of a patent that had issued from a divisional application filed following a restriction requirement. Furthermore, it is far from clear that the step of filing a terminal disclaimer is available to resolve a double patenting issue that arises after the issuance of a patent on the divisional application.

All these considerations indicate that the imposition of a restriction requirement with inadequate authority can lead to situations in which an applicant's legitimate patent rights are exposed to uncertainty and even extinguished. Accordingly, to protect a patentee's rights and to serve the public's interest in the legitimacy of issued patents, Applicants respectfully urge the Examiner not to require restriction in cases such as the present application wherein various aspects in a unitary invention are claimed.

Finally, Applicants respectfully submit that a determination to make the pending restriction requirement final must evidence the patentable distinctness of the defined two groups, one from the other, as presented by the Examiner.

Claims 1, 3, 5-6, 14, 16-17 and 38-39 have been rejected under 35 U.S.C. §101 as allegedly not supported by a specific, substantial and credibly asserted utility or a well established utility.

Specifically, the Examiner, while admitting that the specification does demonstrate that the protein encoded by SEQ ID NO: 1 binds OGF ([Met^5]-enkephalin), alleges that the specification does not provide specific and substantial utility for SEQ ID NOS: 4, 5, 7, 9, 11 and 13.

In an effort to expedite prosecution, Applicants have canceled Claim 39 and amended Claims 1, 3, 5, 14, 16-17 and 38. Claims 1, 3, 5-6, 14, 16-17 and 38, as amended, do not include references to "SEQ ID NOs: 4-5, 7, 9, 11 or 13" or "a fragment of any one of SEQ ID NOs: 1, 4-5, 7, 9, 11 or 13."

Claims 1, 3, 5-6, 14, 16-17 and 38, as presently amended, reference SEQ ID NO: 1 or SEQ ID NO: 2 and delineate that the protein encoded by the claimed nucleic acid molecules binds to OGF. Applicants respectfully submit that the utilities of the nucleic acid molecules, as

presently claimed, are asserted in the specification. For example, the claimed nucleic acid molecules can be used to inhibit undesirable cell growth such as growth of cancerous cells (at page 26 and page 27, lines 24-27); the antisense molecules, which are generated based on the sense molecules, can be used to promote cell growth when desired (page 27, lines 5-11).

In addition, Applicants further respectfully submit that the utilities of the claimed nucleic acid molecules are supported by the observation that the claimed nucleic acid molecules encode an OGF receptor (OGFr), and that at least some of the biological functions of OGFr, e.g., binding OGF and regulating cell growth, have been well-documented in the art.

Therefore, it is respectfully submitted that the specification has asserted at least one specific and substantial utility or one well-established utility. As such, withdrawal of the rejection of Claims 1, 3, 5-6, 14, 16-17 and 38-39 under 35 U.S.C. §101 is respectfully requested.

Claims 1, 3, 5-6, 14, 16-17 and 38-39 have been rejected under 35 U.S.C. §112, first paragraph. Specifically, the Examiner states that, since the claimed invention is not supported by a specific, substantial and credible asserted utility or a well established utility, one skilled in the art would not know how to use the claimed invention.

As submitted above, the claimed invention is supported by a specific, substantial utility or a well-established utility. Therefore one skilled in the art would know how to use the claimed invention. Thus, the rejection of Claims 1, 3, 5-6, 14, 16-17 and 38-39 under 35 U.S.C. §112, first paragraph, is overcome. Withdrawal of the rejection is therefore respectfully requested.

Claims 1, 3, 5-6, 14 and 16-17 have been rejected under 35 U.S.C. §112, first paragraph, as allegedly not enabled.

The Examiner first alleges that since the utilities of SEQ ID NO: 4, 5, 7, 9, 11 and 13, or the utilities of the encoded proteins have not been established, it is not apparent to one skilled in the art how to use the fragments of the protein encoded by these sequences.

It is respectfully submitted that the references to "SEQ ID NOs: 4-5, 7, 9, 11 or 13" or "a fragment of any one of SEQ ID NOs: 1, 4-5, 7, 9, 11 or 13" have been deleted from the claims.

The Examiner also alleges that the recitation "biological activities of an OGFr" in Claim 1 does not specify what these activities are. The Examiner acknowledges that binding to OGF or inhibiting cell growth would be activities of an OGFr. However, the Examiner states that these activities are not part of the claims.

Applicants respectfully submit that Claim 1 has been amended to recite "wherein said nucleic acid molecule encodes a polypeptide that binds to OGF." Support of the amendment can be found throughout the specification, e.g., on page 11, line 28 to page 12, line 7.

The Examiner further alleges that a wash temperature has been omitted in Claim 3. The Examiner suggests that amending Claim 3 to recite a high wash temperature (e.g., 65°C), without adding new matter, would overcome the rejection of Claim 3 and its dependent claims with respect to SEQ ID NO: 1. The Examiner contends that since SEQ ID NOS: 4, 5, 7, 9, 11 and 13 have not been shown to have any utility, Applicants have not taught the artisan how to use nucleic acid molecules which hybridize to these sequences.

Applicants respectfully submit that Claim 3 has been amended to recite "wherein said stringent conditions comprise hybridization at about 65°C and washing at about 65°C in about 0.1X SSC with about 0.1% SDS." Support of the amendment can be found throughout the specification, e.g., on page 13, line 31 to page 14, line 5. No new matter is added. Furthermore,

the claims have been amended to deleted the references to "SEQ ID NOs: 4-5, 7, 9, 11 or 13" or "a fragment of any one of SEQ ID NOs: 1, 4-5, 7, 9, 11 or 13."

The Examiner further alleges that the specification does not provide guidance for or working examples of any "pharmaceutical compositions," as recited in Claims 14, 16 and 17. The Examiner suggests that the rejection can be overcome by amending the claims to recite "A composition comprising ..."

In an effort to expedite favorable prosecution, Applicants have amended Claims 14, 16 and 17 in accordance with the Examiner's suggestion. Applicants reserve the right to file a continuing application to pursue the subject matter relating to the pharmaceutical compositions as originally recited in Claims 14, 16 and 17. Thus, it is respectfully submitted that the compositions of Claims 14, 16 and 17, as presently claimed, are adequately taught by the present specification.

In view of the foreging, it is respectfully submitted that the rejection of Claims 1, 3, 5-6, 14 and 16-17 under 35 U.S.C. §112, first paragraph, as allegedly not enabled, is overcome. Withdrawal of the rejection is therefore respectfully requested.

Claims 1, 3, 5 and 6 have been rejected under 35 U.S.C. §112, first paragraph, as allegedly lacking descriptive support.

The Examiner first alleges that since the utility of SEQ ID NO: 4, 5, 7, 9, 11 and 13, or the encoded proteins has not been established, the specification does not provide guidance for fragments of a protein encoded by these sequences.

As submitted above, the claims have been amended to delete the references to "SEQ ID NOs: 4-5, 7, 9, 11 or 13" or "a fragment of any one of SEQ ID NOs: 1, 4-5, 7, 9, 11 or 13."

The Examiner further alleges that a wash temperature has been omitted in Claim 3. The Examiner suggests that amending Claim 3 by reciting a high wash temperature (e.g., 65°C), without adding new matter, would overcome the rejection of Claim 3 and its dependent claims with respect to SEQ ID NO: 1.

As submitted above, Claim 3 has been amended in accordance with the Examiner's suggestion.

In view of the foregoing, it is respectfully submitted that the claimed nucleic acid molecules are adequately described in the specification in a manner that fully complies with the written description requirement of 35 U.S.C. §112, first paragraph. Therefore, the rejection of Claims 1, 3, 5 and 6 under the written description requirement of 35 U.S.C. §112, first paragraph, is overcome. Withdrawal of the rejection is respectfully requested.

Claims 3, 5, 6, 16 and 17 have been rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite.

The Examiner contends that the wide range and low stringent conditions (0.1-2X SSC) and the lack of wash temperature in Claim 3 make this claim and its dependent claims indefinite. Applicants respectfully submit that independent Claim 3 has been amended to specify the stringent conditions as "comprise hybridization at about 65°C and washing at about 65°C in about 0.1X SSC with about 0.1% SDS." Support for the amendment can be found throughout the specification, e.g., on page 13, line 31 to page 14, line 5.

In view of the foregoing, it is respectfully submitted that the claims as presently recited are not indefinite. Accordingly, the rejection of Claims 3, 5, 6, 16 and 17 under 35 U.S.C. §112, second paragraph, is overcome and withdrawal thereof is respectfully requested.

Claims 1, 5, 6, 14 and 16-17 have been rejected under 35 U.S.C. §102(b) as allegedly anticipated by Bonaldo et al. The Examiner alleges that Bonaldo et al. teach an isolated nucleic acid molecule which comprises a fragment of SEQ ID NO: 1, which is substantially homologous to SEQ ID NO: 1, and which would hybridize under stringent conditions to SEQ ID NO: 1.

Applicants respectfully submit that Claim 1, as amended, does not recite fragments of an OGFr protein encoded by SEQ ID NO: 1. As Bonaldo et al. do not teach SEQ ID NO: 1, the nucleic acid molecules comprising SEQ ID NO: 1 (Claim 1) and the related embodiments (Claims 5, 6, 14 and 16-17) are not taught by Bonaldo et al. Withdrawal of the rejection of Claims 1, 5, 6, 14 and 16-17 as allegedly anticipated by Bonaldo et al. is therefore respectfully requested.

Claims 1, 5-6, 14, 16 and 17 have been rejected under 35 U.S.C. §102(b) as allegedly anticipated by Pellett et al. The Examiner alleges that Pellet et al. teach an isolated nucleic acid molecule which comprises a fragment of any one of SEQ ID NO: 4, 5, 9 and 11. The Examiner further alleges that Pellett et al. teach an expression vector, host cell and a method of expressing the fragment.

Applicants respectfully submit Claim 1, as amended, does not recite SEQ ID NO: 4, 5, 9, or 11 or fragments of an OGFr protein encoded by SEQ ID NO: 4, 5, 9, or 11. Applicants respectfully submit that Pellett et al. do not teach an isolated nucleic acid molecule comprising SEQ ID NO: 1, as presently recited in Claim 1.

The Examiner further alleges that since the hybridization conditions recited in the claims include low salt concentration, and do not include a wash temperature, the molecules of Pellet et al. would be expected to hybridize under the conditions recited in the claims.

Applicants respectfully submit that Claims 1, 5-6, 14, 16 and 17 do not recite any hybridization conditions. Applicants believe that the Examiner may have meant to reference the hybridization conditions recited in Claim 3. As indicated, Applicants have amended Claim 3 to recite stringent hybridization conditions and the wash temperature of 65°C. Accordingly, even assuming that the Examiner was referring to Claim 3, Applicants submit that there is no indication that the molecules of Pellet et al. would be expected to hybridize under the recited hybridization conditions in Claim 3.

Accordingly, Applicants respectfully submit that the subject matter of Claims 1, 5-6, 14, 16 and 17 is not taught by Pellett et al. Thus, the rejection of Claims 1, 5, 6, 14 and 16-17 as allegedly anticipated by Pellett et al. is overcome and withdrawal thereof is therefore respectfully requested.

Claims 1, 5, 14 and 16 have been rejected under 35 U.S.C. §102(b) as allegedly anticipated by Fliegel et al. The Examiner alleges that Fliegel et al. teach an isolated nucleic acid molecule comprising a fragment of SEQ ID NO: 7 as well as an expression vector comprising such nucleic acid molecule.

Applicants respectfully submit that Claim 1, as amended, does not recite SEQ ID NO: 7 or fragments of an OGFr protein encoded by SEQ ID NO: 7. Accordingly, Claims 1, 5, 14 and 16 are not anticipated by Fliegel et al. Withdrawal of the rejection of claims 1, 5, 14 and 16 under 35 U.S.C. §102(b) as allegedly anticipated by Fliegel et al. is respectfully requested.

Claims 1, 5, 14 and 16 have been rejected under 35 U.S.C. §102(b) as allegedly anticipated by Everett et al. The Examiner alleges that Everett et al. teach an isolated nucleic acid molecule comprising a fragment of SEQ ID NO: 13.

Applicants respectfully submit that Claim 1, as amended, does not recite SEQ ID NO: 13 or fragments of an OGFr protein encoded by SEQ ID NO: 13. Accordingly, Claims 1, 5, 14 and 16 are not anticipated by Everett et al. Withdrawal of the rejection of claims 1, 5, 14 and 16 under 35 U.S.C. §102(b) as allegedly anticipated by Everett et al. is respectfully requested.

Claims 1, 5-6, 14 and 16-17 have been rejected under 35 U.S.C. §102(e) as allegedly unpatentable by Chambon et al. (U.S. Patent No. 5,861,381). The Examiner alleges that Chambon et al. teach a fragment of SEQ ID NOs: 5, 9, or 11, as well as a vector, host cell and method of making proteins encoded by the fragments.

Applicants respectfully submit that Claim 1, as amended, does not recite SEQ ID NO: 5, 9, or 11 or fragments of an OGFr protein encoded by SEQ ID NO: 5, 9, or 11. Accordingly, Claims 1, 5-6, 14 and 16-17 are not anticipated by Chambon et al. Withdrawal of the rejection of Claims 1, 5-6, 14 and 16-17 under 35 U.S.C. §102(b) as allegedly anticipated by Chambon et al. is respectfully requested.

Claim 6 has been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over anyone of the three primary references Bonaldo et al., Fliegel et al., or Everett et al., each in view of Chambon et al. (U.S. Patent No. 5,861,381). Bonaldo et al., Fliegel et al. and Everett et al. teach an isolated nucleic acid molecule comprising a fragment of SEQ ID NOs: 1, 7 or 13, respectively and an expression vector, as discussed in the above rejections under 35 U.S.C. §102(b). The Examiner admits that neither Bonaldo et al., nor Fliegel et al., nor Everett et al. teach a cell transformed with an expression vector, or a method of producing a fragment of an OGFr protein. However, the Examiner contends that Chambon et al. teach a cell transformed with an expression vector, as well as a method of producing a fragment of a protein.

Applicants observe that Claim 6 is dependent on Claim 5 which is dependent on Claim 1. Applicants respectfully submit that Claim 1, as amended, does not recite fragments of an OGFr protein encoded by SEQ ID NO: 1 or 13. Applicants further submit that none of Bonaldo et al., Fliegel et al., or Everett et al. teach an isolated nucleic acid molecule comprising SEQ ID NO: 1, as presently recited in Claim 1. Such deficiencies of the primary references are not cured by the secondary reference to Chambon et al. As such, the rejection of Claim 6 under 35 U.S.C. §103(a) based on Bonaldo et al., Fliegel et al., or Everett et al., in view of Chambon et al., is overcome. Withdrawal of the rejection is respectfully requested.

The Examiner has objected to Claim 38. The Examiner suggests that the syntax of Claim 38 could be improved by replacing the phrase "a sequence" with "the sequence." In response, Applicants have amended Claim 38 in accordance with the Examiner's suggestion. Therefore, the objection to Claim 38 is obviated and withdrawal thereof is respectfully requested.

Claim 39 has been rejected under 35 U.S.C. § 112, first paragraph, as allegedly lacking descriptive support, and as allegedly lacking enabling support.

In an effort to expedite favorable prosecution, Applicants have canceled Claim 39, without prejudice. Applicants reserve the right to file a continuing application directed to the subject matter of Claim 39. Therefore, the rejection of Claim 39 under 35 U.S.C. § 112, first paragraph, is moot and withdrawal thereof is respectfully requested.

Claims 3, 5, 6, 14, 16, 17 and 39 have been rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite. Specifically, the Examiner alleges that Claim 3 is confusing since the term "complement" can refer to as little as one nucleotide.

In response, Applicants have amended independent Claim 3 to recite "full-length complement," as suggested by the Examiner. Therefore, the rejection of Claims 3, 5, 6, 14, 16,

17 and 39 under 35 U.S.C. § 112, second paragraph, is overcome and withdrawal thereof is respectfully requested.

Claim 39 has been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Geisel et al. (Sequence Comparison A1) in view of Sibson et al. (WO 94/01548).

In view of the cancellation of Claim 39, the rejection is moot and withdrawal thereof is respectfully requested.

In view of the foregoing amendments and remarks, it is firmly believed that the present application is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,

Frank S. DiGiglio
Registration No. 31,346

Scully, Scott, Murphy & Presser
400 Garden City Plaza
Garden City, New York 11530
Telephone: 516-742-4343

FSD/XZ/ZY:ab